

Hangar 6  
Pearl Harbor Naval Base, Ford Island  
Honolulu  
Honolulu County  
Hawaii

HAER No. HI-5

HAER  
HI,  
2-HONLU,  
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Western Region  
Department of the Interior  
San Francisco, California 94102

HISTORIC AMERICAN ENGINEERING RECORD

HAER  
HI,  
2 HONLU,  
1-

Pearl Harbor Naval Base, Hangar 6

HAER No. HI-5

Location: South end of Ford Island, Pearl Harbor Naval Base,  
Honolulu, Honolulu County, Hawaii

UTM: 04.606951.2362235  
Quad: Puuloa

Date of Construction: 1922

Present Owner: Pearl Harbor Naval Base

Present Use: Temporary storage facility  
To be demolished, September 1985

Significance: Hangar 6 is believed to be the oldest aircraft hangar  
in Hawaii. It played an unglamorous but significant  
role in the development of naval aviation in the  
Pacific and in the World War II offensive against  
Japan. The building was damaged in the December 7,  
1941, attack on Pearl Harbor

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August 1985

Edited and  
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## REPORT ON HANGAR 6, FORD ISLAND, PEARL HARBOR<sup>1</sup>

### Pearl Harbor and Ford Island

Western sailors visiting the Hawaiian Islands in the 18th and 19th centuries noted that the sheltered waters of Pearl Harbor offered the finest anchorage in the central Pacific Ocean. In 1872, Lieutenant General John McAllister Schofield visited Hawaii and the next year submitted a confidential report to the Secretary of War recommending that Pearl Harbor be secured for use as a U. S. naval base. Following Schofield's recommendation, the United States and the Hawaiian Kingdom in 1887 negotiated the Reciprocity Treaty, which gave the United States exclusive naval rights to the harbor in exchange for the duty-free entry of Hawaiian sugar into the American market. In 1893, the Hawaiian Kingdom was overthrown and, in 1898, the islands were annexed by the United States.

The U. S. wasted no time in developing Pearl Harbor as the principal American naval base west of California. In 1917, the Government acquired title to Ford Island, which lies in the middle of the harbor. An Army air base, subsequently named Luke Field, was built on the island in 1917.<sup>2</sup> In 1919, the Navy decided to establish a naval air base on Ford Island, and the two services agreed to share the island's runway while maintaining separate maintenance and administrative facilities.<sup>3</sup>

### Construction of Hangar 6

Hangar 6 was an important part of the first increment of the new naval air station on Ford Island.<sup>4</sup> Since the building was designed primarily to house and service the Navy's seaplanes and flying boats, it was located on the shoreline, where a sloping cement ramp led from the hangar to the water. Hangar 6 was completed in 1922 by the Pittsburgh [sic] Des Moines Steel Company at a cost of \$445,564. The structure was steel-framed and had a concrete floor. It measured 302.5 by 180 feet. With an open single-story interior, it was 51 feet high. Notable features included rolling doors at the north and south ends of the building to allow access to both the Ford Island airstrip and the waters of Pearl Harbor.

### Use of Hangar 6 Between the Wars

Throughout the 1920s and 1930s, Hangar 6 was used to maintain and shelter U. S. Navy aircraft. One important activity which took place in the building was the assembly of airplanes which were shipped disassembled to Hawaii before the development of aircraft with the range to make the 2,500-mile passage from the west coast of the United States to Hawaii. The hangar also housed the

administrative offices of naval aviation units that used the Ford Island facilities.<sup>6</sup>

By 1925, the air station at Ford Island was the home base for two squadrons of seaplanes.<sup>7</sup> In the pre-World War II period, Hangar 6 fulfilled an important need in sheltering the maintenance activities for those units, as well as providing for the upkeep of planes from the fleet's battleships, cruisers, and aircraft carriers. The 1920s and 1930s saw the development of aviation from a suspect stepchild to an important component of naval operating forces. The U. S. Pacific Fleet made annual cruises to Hawaii, and during those visits engaged in exercises (including surprise air raids on Pearl Harbor) which honed the techniques of fleet air operations. Hangar 6, in its role as a repair and upkeep site for fleet aircraft in Hawaii, played an important if unheralded part in these development.

The growth of naval aviation required the expansion of Hangar 6. In the late 1930s, the building was modified by the addition of lean-to extensions at its east and west ends. These two-story structures measured 80 by 24 feet (east) and 130 by 24 feet (west). They stood 24 and 31 feet high, respectively. These additions were designed to accommodate facilities necessary for the operation of the aircraft units and the convenience of those who worked in the building: bathrooms, radio room, metal and carpenter shop, armory, navigation ready room, flight engineering log storage, life raft repair, parachute loft, and administrative offices.<sup>8</sup>

Some idea of the maintenance activities which took place in Hangar 6 before World War II can be gleaned from a 1930 description of the overhaul procedures for U. S. Navy airplanes.<sup>9</sup> Highly skilled specialists performed this task at intervals, ranging from 250 to 500 hours of aircraft flying time. The first step in the process was the complete disassembly of the aircraft, a procedure which included stripping the metal or fabric from the wings. It required precise timing and careful organization, since different parts were sent to separate sections before disassembly and were supposed to be ready for reassembly at the same time.

First, the disassembled parts were cleaned by sandblasting or immersion in solvents. The fuselage was inspected for weakened spots, which were reinforced by welding. Elongated holes for the attachment of wires were returned to original tolerances by being filled with welded metal and redrilled. Parts, worn or damaged beyond repair, were replaced. Engines, too, were disassembled. Electrical parts and carburetors were disassembled, cleaned, and where necessary, replaced. Cylinders were sandblasted, and pistons and rods broken down and cleaned. The plane's components were repainted, fabric was restitched and redoped, and the plane was reassembled and tested.

Special equipment was necessary to perform these tasks, which involved the lifting and moving about of engines, fuselages, and other heavy components. For that work, Hangar 6 was equipped with a set of four overhead rails with a load capacity of 1,500 pounds. In addition, there were two 4-ton booms and two 5-ton booms mounted in the floor near the center of the building.<sup>10</sup>

Near the bottom of the rank and status scale of those who worked in Hangar 6 were the beach crews, who eased the planes in and out of the water on the seaplane ramp. As a plane taxied up to the ramp, the beach crew waded out to meet the aircraft. If it was a flying boat, they inserted an axle through the hull and attached a tire to either end of the shaft. The tires were half-filled with water to overcome their bouyancy; still, it took two men to push a wheel down into the water and attach it to the shaft. A fifth man attached the tail wheel to a triangular assembly at the rear of the plane. The same man then attached a line to the tail wheel assembly. At the other end of the line was a tractor on the ramp. After making sure the line was secure, he signalled the tractor driver to begin towing the plane onto the ramp. A former beach crewman explained the delicate choreography involved:

Now this is sort of tricky, because the only way you could steer the plane was with a handle that was on the tail wheel. You had to be able to judge where we're going and pay attention to the tractor driver and the beachmaster and get the plane parked on the apron where there were planes operating. They were parked pretty close together.<sup>11</sup>

A good beach crew could get a plane from the water onto the ramp in two and a half minutes, and there developed an esprit among the crews which led to frequent competitions to see who could beach an aircraft the fastest.

#### December 7, 1941, and World War II

On December 7, 1941, those on Ford Island found themselves at the center of the Japanese surprise attack on Pearl Harbor. The most important targets of the attackers were the battleships of the U. S. Pacific Fleet moored on "Battleship Row," less than a mile from Hangar 6. The naval air station on Ford Island was targeted too, because the Japanese were intent on destroying U. S. aircraft before they could rise to challenge the raiders. There were few combat planes on Ford Island that morning (they were aboard the U. S. carriers, which were at sea), but there were 35 PBY patrol planes and 31 utility aircraft at the air station.<sup>12</sup>

Most of these planes were parked near Hangar 6, and 26 planes on Ford Island were destroyed by strafing and bomb blasts. Of the approximately dozen bombs that hit the island, seven landed on or near Hangar 6. One incendiary bomb struck the building and started a fire which gutted the northeast quadrant of the structure. Efforts to fight the fire were made futile by a rupture in the

island's water main, caused by the battleship USS Arizona sinking and settling on the line that supplied water to Ford Island. Captain James Shoemaker, commanding officer of the air station, reported:

The Commanding Officer was the first arrival at burning Hangar #6 after it was hit, followed shortly by the Fire Department. As there was no water the fire fighting apparatus could not function and was secured. Men were immediately called out to save undamaged planes by pulling them away from those on fire.<sup>13</sup>

Five bombs landed near Hangar 6, with the largest producing a crater 20 feet wide and seven feet deep. Another bomb, a dud, hit the hangar and spewed a yellowish powder onto several men in the vicinity; many of them suffered chemical burns from the material. The single recorded death at the building was Aviation Ordnance Mate First Class Theodore W. Croft, who was killed by three bullet wounds in the head at the beginning of the attack.<sup>14</sup>

Ground crews fought back as best they could. Merion Croft, a ground crewman in neighboring Hangar 38, remembers mechanics assembling makeshift anti-aircraft guns by mounting machine guns in the vices on wheeled workbenches. Some men made a futile attempt to shoot back, but they were unable to repel the Japanese. Others did their best to wheel planes from the inferno and remove bombs and depth charges mounted on their wings. Croft recalls a Cadillac ambulance speeding around the area. The driver tried to make a sharp turn as he crossed the sloping seaplane ramp and overturned. Men poured out of Hangars 6 and 38, righted the ambulance by hand, and returned to the hangars without a word.<sup>15</sup>

That there were not more casualties in and around Hangar 6 on the morning of December 7 can be attributed only to luck. When the attack began, the tanker USS Neosho was discharging high octane aviation gasoline into a group of tanks a few hundred yards from Hangar 6. Ensign Arnold Singleton was directing Chief Machinist's Mate Alfred Hansen and Aviation Machinist's Mate Second Class Albert Thatcher in clearing the lines when the first bomb dropped. If a bomb or incendiary bullet had struck the tanker or the fuel tanks, the entire southern part of Ford Island might have gone up in flames. Working under a hail of shrapnel and machine gun bullets (Hansen was wounded twice), the three men continued the delicate task of disconnecting the tanker despite the all too obvious danger of immolation. It took them 45 minutes, and it was not until 9:42 a.m. that the Neosho's shipper, Commander John Phillips, was able to begin backing the tanker across the channel toward Merry Point.<sup>16</sup>

Another close call came with the explosion of the destroyer USS Shaw, drydocked across the main channel a quarter mile from the hangar. About 9:00 a.m., a Japanese bomb struck the Shaw's forward magazine. The resulting blast hurled a heavy watertight door into the air. "Flying just like a butterfly," remembers Croft, "it barely missed the men working near Hangar 6 and landed next to the building."<sup>17</sup>

The fire left the steel frame of Hangar 6 intact, and the building was soon replaced. <sup>18</sup> As the U. S. offensive against Japan gained momentum, the stream of naval aviation units passing through Ford Island became a flood. Repair and maintenance facilities west of the Hawaiian Islands were widely scattered and, until late in the war, poorly equipped. The importance of the work conducted in Hangar 6 can be gauged by the complaint of a USS Alabama scout plane pilot that his battleship "never had come into contact with a seaplane servicing until west of Pearl Harbor."<sup>19</sup>

#### Post-World War II Period

The postwar development of jet aircraft found the airfield at Ford Island inadequate. Because of the finite space available for lengthening the strip, it proved impossible to expand and accommodate jet airplanes, which required longer runways. With its useful life at an end, the air station was decommissioned on March 31, 1962. Hangar 6 has been used since then, and is presently being used, as a temporary storage facility.<sup>20</sup>

FOOTNOTES

- 1 Although it is officially designated Building 6, this report refers to the structure as Hangar 66 in order to avoid confusion with Building 6 on the main side Pearl Harbor Naval Station.
- 2 William J. Horvat, Above the Pacific. Fallbrook, California: Aero Publishers, 1966, pp. 32-34.
- 3 Ibid., p. 38.
- 4 Although the facility was commonly referred to as Ford Island Naval Air Station, it was officially commissioned as Naval Air Station, Pearl Harbor.
- 5 Building cards and architectural plans on file with Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.
- 6 James E. Wise, Jr., "Ford Island," U. S. Naval Institute Proceedings, October 1964, pp. 77-91.
- 7 Willis Edward Snowbarger, "The Development of Pearl Harbor," Ph.D. dissertation, University of California, 1950, p. 202.
- 8 Plans: "Fourteenth Naval District, Fleet Air Base, Pearl Harbor, T.H., Seaplane Hangar No. 6, Lean To General Plan" (No. V-N10-312), 1938; "Hangar No. 6, General Plan" (No. 2006), n.d., in files of Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.
- 9 L. C. Stevens, "Behind the Flying Lines," U. S. Naval Institute Proceedings, August 1930, pp. 720-726.
- 10 "Hangar No. 6 General Plan" (No. 2006), n.d., files of Pacific Division,, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.
- 11 Kenton Nash interview, North Texas State University Oral History Collection, North Texas State University, Denton, Texas.
- 12 For a definitive account of the Pearl Harbor attack, see Gordon Prange, with Donald M. Goldstein and Katherine V. Dillon, At Dawn We Slept: The Untold Story of Pearl Harbor, New York: McGraw-Hill, 1981.
- 13 Report of Commanding Officer, Naval Air Station, Pearl Harbor, December 21, 1941, in Fourteenth Naval District Reports, World War II Action Reports, Operational Archives, Naval Historical Center, Washington, D. C.



- 14 Ibid.
- 15 Merion Croft interview, USS Arizona Memorial Oral History Collection, USS Arizona Memorial, Honolulu.
- 16 Report of Commanding Officer, Naval Air Station, Pearl Harbor, December 21, 1941.
- 17 Croft interview.
- 18 Report of Commanding Officer, Naval Air Station, Pearl Harbor, December 21, 1941.
- 19 Malcolm Muir, Jr., "United States Aviation Units Abroad Fast Battleships In World War II: Changing Missions in Midstream," Aerospace Historian, June 1980, 109-12
- 20 Ford Island Dad's Club, Ford Island Past and Present (no page, no date); Hangar 6 Property Cards in files of Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.

#### REFERENCES

##### Books

- Horvat, William J. Above the Pacific. Fallbrook, California: Aero Publishers, 1966.
- Kuykendall, Ralph S. The Hawaiian Kingdom. 3 vols. Honolulu: University of Hawaii Press, 1938-1967.
- Prange, Gordon W., with Donald M. Goldstein and Katherine V. Dillon. At Dawn We Slept: The Untold Story of Pearl Harbor. New York: McGraw-Hill, 1981.

##### Articles

- Muir, Jr., Malcon "United States Aviation Units Aboard Fast Battleships in World War II: Changing Missions in Midstream." Aerospace Historian, June 1980, pp. 109-112.
- Stevens, L. C. "Behind the Flying Lines." U. S. Naval Institute Proceedings, August 1930, pp. 720-726.
- Wise, Jr., James E. "Ford Island." U. S. Naval Institute Proceedings, October 1964, pp. 77-91.

### Interviews

Merion Croft, in USS Arizona Memorial Oral History Collection, USS Arizona Memorial, Honolulu.

Kenton Nash, in North Texas State University Oral History Collection, North Texas State University, Denton, Texas.

### Miscellaneous

Commanding Officer, Naval Air Station, Pearl Harbor. "Air Raid Attack by Japanese on 7 December 1941, Report on," December 21, 1941, in Fourteenth Naval District Reports, World War II Action Reports, Operational Archives, Naval Historical Center, Washington, D. C.

Ford Island Dad's Club. Ford Island Past and Present, (no page, no date, typescript).

Plans and building cards relating to Hangar 6 in the files of the Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.

Snowbarger, Willis Edward. "The Development of Pearl Harbor." Ph.D. dissertation, University of California, 1950.

Vanbackle, Joseph D. "Pearl Harbor From the First Mention Of 'Pearl Lochs' To Its Present (1955) Day Usage." Pearl Harbor: Fourteenth Naval District Public Information Office (typescript).